

# Kemin SCI Chemistry



Caleb Grulke  
Chemistry & Biology  
Ankeny High School  
Kemin Industries

## Part I: Overview of Business

- Kemin was started in 1961 by R.W & Mary Nelson.
- Began as a small agricultural chemical company and has grown to a world wide ingredient manufacturing company.

## Part II: Job Specifics

### *Specialty Crop Improvement (SCI)*

- SCI Looks at the molecule extraction methods for different molecules and plant species.
- The goal is to identify which processes provide the most desirable yield.
- The SCI team also analyzes current extraction methods to determine if any of the desired molecule is lost between the harvest and extraction facility.

## Part III: Introduce the Problem

- Develop essential oils with higher concentrations of fragrant molecules to be used in products.

## Part IV: Background

- Grow plants with desired essential oils.
- Find out what molecule provides the fragrance in the essential oil.
- Breed plants that produce higher concentration of that molecule in the essential oil.

## Part V: Business Solution

- Find plants that are marketable.
- Develop clonal lines of the plants that produce the highest concentration of the desired molecule.
- Determine the most efficient extraction process to extract the molecule.

## Part VI: Student Solutions

- Students could research different aspects of the project. Some students could research which fragrances are most marketable while other students research extraction methods.
- Students could grow the plants and extract the essential oils.
- Students could create soap or lotion that could be used as an advertisement for their product.